



US 20160032826A1

(19) **United States**(12) **Patent Application Publication****Rued et al.**(10) **Pub. No.: US 2016/0032826 A1**(43) **Pub. Date: Feb. 4, 2016**(54) **TURBOFAN AIRCRAFT ENGINE****Publication Classification**(71) Applicant: **MTU Aero Engines AG**, Muenchen (DE)(51) **Int. Cl.**
F02C 3/107 (2006.01)
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CPC **F02C 3/107** (2013.01); **F01D 21/003** (2013.01)(57) **ABSTRACT**

A turbofan aircraft engine has at least one stage pressure ratio is at least 1.5, and a quotient of the total blade count divided by 110 is less than a difference $[(p_1/p_2)-1]$ of the total pressure ratio minus one, and the total pressure ratio is greater than 4.5, and the turbine has at least two and no more than five turbine stages; and/or a product (A_n^2) of an exit area (A_L) of the second turbine and a square of a rotational speed of the second turbine at the design point is at least $4.5 \cdot 10^{10}$ [$\text{in}^2 \cdot \text{rpm}^2$], and a blade tip velocity (u_{tip}) of at least one turbine stage of the second turbine at the design point is at least 400 meters per second. A jet and method are also provided.

(21) Appl. No.: **14/450,882**(22) Filed: **Aug. 4, 2014**